

Colloquium

Rechargeable Magnesium Batteries: Progress, Challenges and Perspectives

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Abstract

Rechargeable magnesium (Mg) battery is considered as one of promising candidates for next-generation post-Li battery technology because of its potential high energy density, safety features and low cost. The research in this field has been primarily impeded by the lack of suitable electrolytes fulfilling a multitude of requirements for practical application. In addition, identifying cathode materials with good reversibility and long cycle life is also an ongoing quest for the realization of high-energy Mg batteries¹. Herein, the recent progress achieved in the development of efficient electrolytes and Mg systems with conversion-type and organic cathodes will be presented.^{2,3} Moreover, the remaining major technical challenges and future prospects will be discussed.

Literature

1. Beyond Intercalation Chemistry for Rechargeable Mg Batteries: A Short Review and Perspective (2019 – [link](#)).
2. Towards Highly Reversible Magnesium-sulfur Batteries with Efficient and Practical Mg[B(hfip)4]2 Electrolyte. (2018 – [link](#)).
3. New class of non-corrosive, highly efficient electrolytes for rechargeable magnesium batteries. (2017 – [link](#)).

Brief Bio

Dr. Zhirong Zhao-Karger is a research scientist at the Karlsruhe Institute of Technology (KIT). She received her PhD in Organic Chemistry at the University of Hannover, Germany. After postdoctoral studies at the University of Heidelberg, she joined the group of Prof. Maximilian Fichtner at KIT. Her current research is focused on the development of advanced magnesium and calcium batteries.

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FIT, Georges-Köhler-Allee 105, 79110 Freiburg

Seminar room, ground level